Thermal Pyrolytic Graphite Enhanced Components, Phase II

Completed Technology Project (2009 - 2011)

Project Introduction

Peregrines innovation will reduce the required input power, increase a coolers systems margin for a giving cooling load and reduce vibration accordingly for Cryocoolers. Our innovation will enhance the thermal conductivities of structures associated with the cryocooler, enable much more efficient heat removal and thereby produce a more efficient system. Effectively we will be increasing the thermal conductivities of the structures associated with the Cryocoolers by embedding Thermal Pyrolytic Graphite within a matrix of material to produce a thermal conductivity 5 times higher than current available materials. As cryocooler technologies attempt to cool components down around the 4

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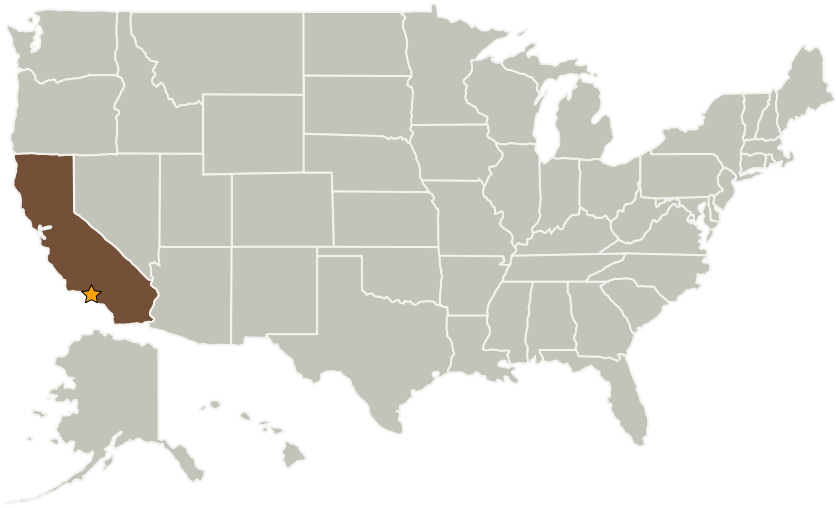
K level, waste heat and the management thereof becomes critical to the performance of the cryocooler. Thermal conductivity structures made from our innovation possessing a thermal conductivity of 700 W/mK will eliminate thermal loads more effectively and will lead to a more efficient and better performing cryocooler. Phase I has proven feasibility, Phase II will development and demonstrate our innovation resulting in a flight component for the MIRI cooling system for the James Webb Space Telescope.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Jet Propulsion Laboratory (JPL)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Jet Propulsion Laboratory(JPL)	Lead Organization	NASA Center	Pasadena, California
The Peregrine Falcon Corporation	Supporting Organization	Industry	Pleasanton, California

Primary U.S. Work Locations
California

Project Transitions

January 2009: Project Start

February 2011: Closed out

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.1 Cryogenic Systems
    - TX14.1.3 Thermal Conditioning for Sensors, Instruments, and High Efficiency Electric Motors